Wildlife Diversity Section

Annual Report

September 2002 – August 2003

Division of Fish and Wildlife
Indiana Department of Natural Resources

Wildlife Diversity Section

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On the cover: A great blue heron catches a meal. In 2003, a total of 6,728 active great blue heron nests were counted in Indiana.

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Message from the Chief

The new federal funds for nongame species have proven to be a strong evolutionary force. They have transformed Indiana's Nongame and Endangered Wildlife Program (NEWP) into the Wildlife Diversity Section (WDS). " How?" You may ask does the section differ from the program. True to the evolutionary model, WDS is better adapted to grow and thrive in today's conservation environment.

The entire program has been elevated to the "Section" level, on equal footing with the traditional Wildlife and Fisheries Sections. Two new positions, a staff specialist and a herpetologist, have been added to the WDS staff. The staff specialist position will help handle the day-to-day operations of the section and the administrative requirements associated with accepting federal funds. This will free-up the WDS chief to pursue the critical communications necessary to form lasting and productive partnerships. We are still in the process of trying to fill the key staff specialist position. Zack Walker, your new herpetologist, will give much needed attention to reptiles and amphibians and the habitats upon which they depend.

The development of Indiana's Comprehensive Wildlife Strategy (CWS) is underway. A team at Indiana State University is under contract to complete an assessment of the quality and quantity of the state's wildlife habitat. A firm has been selected to facilitate the process of plan development including selection of indicator species, identification of threats and conservation strategies and solicitation and inclusion of a wide array of non-agency input. Many of you or your organizations will be contacted to participate in the development of Indiana's Comprehensive Wildlife Strategy. The goal is to produce a CWS with broad participation. The CWS is not intended to be the section's, division's or even the department's plan; rather the CWS should be the umbrella conservation plan for all people and organizations in Indiana interested in wildlife conservation. As you can see, broad participation is critical.

So NEWP has been transformed from a small program, flying by the seat of our pants, into a medium-large program. We are getting a lot more accomplished and looking forward to a productive future. However, as a large program we are subject to more complex process and procedures than ever before. We are learning the ropes of our new way of doing business and will keep you posted. Now more than ever we will be seeking partners. Your help and participation are needed; we will be in touch.

Katie Smith

Wildlife Diversity Section

The summer of 2003 marked new beginnings for the Nongame and Endangered Wildlife Program (NEWP). The Nongame Program officially changed its name to the Wildlife Diversity Section. The Wildlife Diversity Section (WDS) is a not-for-profit organization housed in the Division of Fish and Wildlife with the Indiana Department of Natural Resources.

The main goal of the WDS is to protect and manage more than 550 species of nongame and endangered wildlife in Indiana. These species comprise 86 percent of all the wildlife in the state. Approximately 86 of these species are state endangered while another 49 are listed as special concern in the state.

The WDS defines nongame as "Any animal species that is not traditionally pursued for recreational, commercial or consumptive purposes." Examples of nongame animals are box turtles, chipmunks, cardinals and rainbow darters.

The impetus for the WDS began in 1973 with the passing of the Federal Endangered Species Act. The Act required each state to develop a listing of endangered, threatened and special concern species. The Nongame and Endangered Wildlife Program officially began in 1982 with the initiation of the income tax checkoff.

The WDS is funded almost entirely by donations. A portion of funding is received from the Federal Wildlife Conservation and Restoration Program and State Wildlife Grants.

In 1982, state legislation initiated the Nongame Fund. The income tax checkoff on Indiana income tax forms provides tax payers the opportunity to make a tax-deductible donation to the Fund. Tax payers may donate all or a portion of their tax refund to help support the projects of the WDS.

The WDS receives no funding from state general revenues and relies on these donations to function.

The WDS currently has a staff of six full-time positions: Wildlife Diversity Section Chief, Nongame Education Specialist, State Aquatics Biologist (fish and mussels), State Herpetologist (amphibians and reptiles), State Ornithologist (birds) and State Mammalogist (mammals).

These six individuals work together to protect and manage the extraordinary diversity of wildlife in the State of Indiana.

Nongame . . . "Any animal species that is not traditionally pursued for recreational, commercial or consumption purposes."

Funding

The WDS utilizes the funds from the Nongame Fund to accomplish its goal. Monies to the fund are provided from direct donations to the fund and donations made through the Indiana Income Tax form. The WDS utilizes five different strategies to reach its goal.

The WDS staff and biologists develop comprehensive plans to perform research and surveys, habitat management, public education, restoration projects and land acquisition.

Research and Surveys:
WDS biologists conduct surveys to determine where species are located in the state and their population status. This information is important for creating management plans and evaluating management programs that benefit these animals.

Habitat Management:
Habitat often needs to be maintained to provide feeding, nesting and other habitat resources for species.

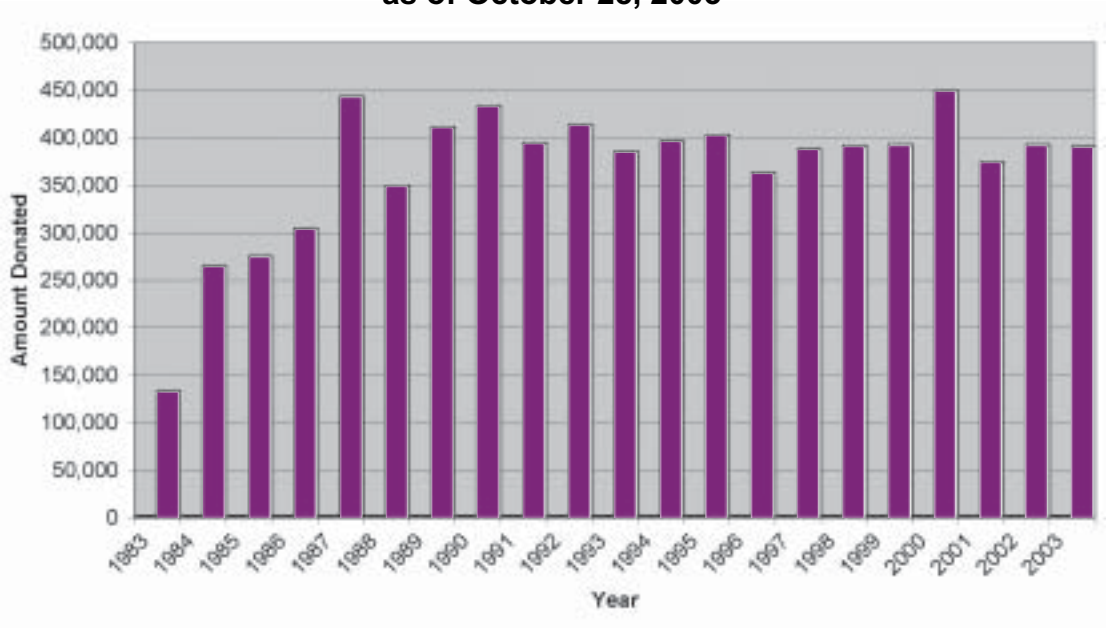
Public Education:
Publications and presentations are provided to the public about our program and species. Press conferences are held for newsworthy events.

Restoration Projects:
Species are restored that no longer occur in Indiana or occur in very low numbers. Indiana has had four reintroduction projects.

Land Acquisition:
The WDS can purchase properties that serve as habitat for nongame and endangered wildlife.

From Jan. 1, 2003 to Oct. 28, 2003, the Nongame Fund earned $390,561 through direct donations and the income tax checkoff.

Nongame Fund Donations as of October 28, 2003



Top news for 2002 – 2003

Wildlife Wins Federal Support

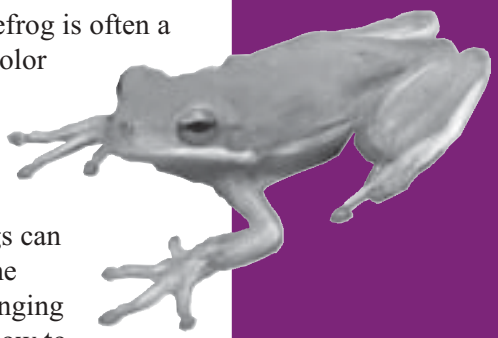
In federal-fiscal year 2002 (Oct. 1, 2001 to Sept. 30, 2002) Indiana was eligible for $1,364,676 in federal matching funds through the State Wildlife Grant Program (SWG). Planning projects are reimbursed at a rate of 75 cents for every dollar spent and implementation projects are reimbursed at a rate of 50 cents on the dollar. These funds are being spent on approved, eligible projects related to the completion of Indiana's Comprehensive Wildlife Strategy. Land acquisition projects in partnership with the Division of Nature Preserves and others, the continued implementation of our survey and monitoring, research and management projects and wetland restoration and habitat development on new public lands are the proposed activities to be covered by Indiana's 2003 SWG allocation of $1,023,500. In 2004, we hope to receive similar or increased funding.

Green Treefrogs Move In

Green treefrogs (*Hyla cinerea*) can be found from Delaware to the southern tip of Florida, west through the Gulf Coastal Plains into Texas, and north to the extreme southern limits of Illinois. Isolated populations have additionally been discovered farther north in Missouri and Kentucky. During the spring of 2003, the Hoosier Herpetological Society and Mike Lodato discovered a population of green treefrogs located within southern Indiana. Although long expected, this is the first time green treefrogs have been documented to occur naturally within the state. Herpetologists believe that the green treefrog is currently expanding its range. This expansion would result in the green treefrogs migrating to formally unoccupied areas.

Green treefrogs have been documented to occur across the Ohio River in nearby Henderson, Ky. However, the origin of the Indiana population is unknown.

Green treefrogs prefer swampy habitats but will utilize the edges of ponds, lakes, and streams. In the southern part of their range, green treefrogs can be found in almost any habitat that is supplied with water. Green treefrogs typically breed during the spring with calling activity tapering off in late June. The call of the green treefrog resembles that of a rising "cowbell" and can be expressed by a nasal queenk-queenk-queenk. Eggs are deposited in small packets onto floating vegetation. Tadpoles typically transform in about 60 days from hatching.



The green treefrog is often a bright green color with pale stripes along its sides. The coloration of green treefrogs can vary with some individuals ranging from pale yellow to greenish-gray. Gold flecking can occur on the backs of some individuals, but may not be present on all frogs. Green treefrogs typically grow to be 2.5 inches in length.

The green treefrog will be added to the list of Indiana's native amphibians. This listing will prohibit the commercial sale of green treefrogs within the state. It has not yet been decided if the species will be added to the state endangered species list.

WDS Welcomes Change . . . with a new name

During summer 2003, the Nongame and Endangered Wildlife Program (NEWP), put out new roots in the Division of Fish and Wildlife. The Nongame and Endangered Wildlife Program joined the ranks of the Fisheries and Wildlife Sections and has become the Wildlife Diversity Section.

NEWP is now the WDS, but what does that mean for the program? That means that the program is growing. Technically we should say, the Section is growing.

Although we are in the midst of learning the 'tricks of the trade' with federal funding and reimbursements, the change could not have come at a better time.

We've added two new positions. The WDS finally has its own herpetologist and will soon be adding a staff specialist. The staff specialist will assist the chief with federal grants and state project planning. This will allow the chief to foster new relationships and partnerships for the program. We'll also be able to seek out more project opportunities.

It is critical that the Section continue to receive funding from the Nongame Fund. These direct donations provide the necessary non-federal matching funds. With these funds, the Section will continue performing its regular duties, add new programs and function as a not-for-profit organization.

Top news for 2002 – 2003

. . . and a new face

The Wildlife Diversity Section is proud to introduce Mr. Zack Walker as the new WDS herpetologist. Zack, a certified associate wildlife biologist with the Wildlife Society, is located in the Bloomington field office and officially started his new position July 7, 2003.

He will take on the responsibility of research, surveys and management of Indiana's nongame and endangered amphibians and reptiles.

Zack was born and raised in Bloomington, Ind. and pursued a BS degree in wildlife science from Purdue University. He continued at Purdue to earn his masters degree in biology. His graduate research focused on the spatial ecology of the timber rattlesnake in southcentral Indiana. This involved the use of radiotelemetry to quantify habitat selection and movement patterns for study individuals.

While obtaining his masters, Zack was also able to assist for a month with a leatherback sea turtle project located in Costa Rica. After graduation Zack accepted a position as Indiana's deer research biologist. He has been working for the state since that time.

New WDS herpetologist, Zack Walker.

Top news for 2002 – 2003

Administrative Rule Changes

Changes in administrative rules for nongame and endangered wildlife takes place during the Division of Fish and Wildlife's Administrative Rule Change Process. This year's changes cover topics from deer, amphibians and ice shanties to educational and rehabilitation permits.

Major changes to the rules typically occur every two years. However, changes may occur throughout the year if an emergency or pressing issue arises. This lengthy, in-depth process takes almost an entire year to complete. Thus allowing for increased public participation prior to final adoption.

Changes in rules for nongame and endangered wildlife are proposed only after extensive research and discussion between nongame biologists, fish and wildlife staff and technical advisory committees. These changes are proposed to help maintain healthy and diverse wildlife populations in Indiana.

Rule proposal changes and comments are available online at www.in.gov/dnr/fishwild/about/rules.htm

Rule Change Process

Step 1
Rule Change Comments
Individuals offer comments on what changes they would like to see to current administrative rules. Comments can be posted online, mailed or given at an open house.

Step 2
Review of Comments
All comments provided are reviewed by fish and wildlife biologists and managers in developing proposed changes.

Step 3
DNR Proposes Rule Changes
After careful analysis, the DNR announces its proposed rule changes.

Step 4
Comments on Changes
The public, once again, is asked to comment. Comments are obtained regarding the DNR's proposed changes.

Step 5
Rules Revised
Based on public comment, fish and wildlife managers, biologists and law enforcement officials revise the proposed rules.

Step 6
Preliminary Adoption
The Natural Resources Commission (NRC) has the option to preliminarily adopt the proposed rules during a public meeting. Recommendations or changes can also be proposed by the NRC.

Step 7
Public Hearing
After preliminary adoption by the NRC, the Commission's hearing officer will conduct a public hearing, prepare a report and offer any recommendations or changes to the proposed rules. A copy of the report is made available prior to final Commission action.

Step 8
Final Adoption
Final rules are considered by the NRC for adoption during a public meeting held in Indianapolis.

Step 9
New Rules Effective
Once approved by the NRC, the Attorney General must verify that all new rules and changes are legal. Upon verification, the rules then go onto the Governor for final approval. If approved and signed, the changes will go into effect later that year or early the following year.

Ospreys Call Indiana Home

(Above) An osprey chick at Patoka Lake stands inside the hack tower. (Below) Ornithologist, John Castrale shows guests one of the osprey chicks. (Background) The hack tower at Patoka Lake.

After constructing release facilities at Patoka Lake (southern Indiana) and Tri-County Fish and Wildlife Area (FWA) (northeastern Indiana), 16 osprey nestlings from the Chesapeake Bay of Virginia were obtained on June 25 and placed in hacking cages at the two sites. The ospreys were cared for and released between July 14 and 24. Initial flights for the birds were strong. For monitoring during the hacking process, the osprey chicks were spray-painted on the wings and breast for individual identification. Positive identification was necessary to track eating habits and any abnormal behavior in the chicks.

Birds were monitored into September. Within hours of taking their first flight, several of the 16 birds began to catch their own food. Eight birds lingered around the hack sites until the end of August with no reported instances of mortality. Problems were few and included initial difficulty in getting young osprey to take food and one bird escaped during a feeding period.

Releases are planned again next year at Patoka and Tri-County as well as Jasper-Pulaski and Minnehaha FWAs. Five active nests (Brookville Reservoir, Potato Creek State Park, Patoka Lake, Whitewater River near Metamora, Hovey Lake FWA) were known in 2003 and 10 nestlings were successfully raised at three sites. A pair also built a nest at Pigeon River FWA where nest platforms were provided.

Ospreys will breed at about two to three years of age. The ospreys reintroduced in Indiana will fly south and remain in a warmer climate until they are of age to breed. Because ospreys return to their nesting area primarily only to breed, the WDS will not truly begin to assess the success of the program until the chicks return to Indiana around the year 2005.

Special guests and members of the media gather around the Tri-County FWA osprey hack tower during the reintroduction press conference.

Land Acquisition

In earlier times, least terns abundantly nested on sandbars in large Midwestern rivers. The bars, periodically scoured by floodwaters, support little vegetation and provide an ideal surface for the semi-colonial, ground-nesting least tern. Isolated from many ground predators and other disturbances, the terns were able to reproduce successfully.

To aid navigation, the large interior rivers have been impounded, creating a series of pools that either cover the original sandbars or hinder the scouring process, allowing excessive vegetation. In addition, human recreational activities can disturb nesting terns on the remnant habitat causing the terns to abandon their nests. The numbers of interior least terns dropped and in 1985 the least tern was placed on the federal endangered species list.

In 1986, a single tern nest was found on the center dike in the 3,000 acre cooling lake associated with the Cinergy power generating plant in Gibson County. From the air, the center dike resembles a long, narrow sand and gravel spit. Cinergy has worked with the WDS and the U.S. Fish and Wildlife Service (USFWS) in the management of their property for the terns. However, the presence of nesting terns on ash ponds and other production areas was problematic for the safe and efficient operation of the plant and for plant neighbors. For example, control of fugitive dust from the ash disposal ponds was greatly hindered when terns were nesting on the ash disposal area. To help alleviate conflicts with nesting terns, Cinergy entered into a Habitat Conservation Plan with the USFWS and donated the 464-acre Cane Ridge Wildlife Management Unit to the USFWS. Cane Ridge is located immediately south of Gibson Lake. A 67-acre least tern unit is under construction to provide additional nesting habitat outside Cinergy's active plant area.

Tern Bar Slough (TBS), added this year, is located immediately east of Cane Ridge. The 840-acre TBS was purchased with a permanent Natural Resources Conservation Service - Wetland Reserve Easement and funds from a Habitat Conservation Plan - Land Acquisition Grant from the USFWS. Primarily, the property was acquired to provide a minimum of 60 acres of additional nesting habitat for interior least terns. When compatible with the primary use, wildlife viewing, hunting and trapping will eventually be acceptable secondary uses of the property.

Construction of the tern nesting islands or bars, and impoundments and wetland restoration is being planned. Construction is not expected to start earlier than the fall of 2004. The property will be closed to the public until the restoration and tern nesting facility construction is complete.

slough (pronounced *slew*) is a backwater or a shallow depression filled with nonflowing water

Tern-Bar Slough

WDS Awards Indiana Art Students $6,000 in Scholarships

Giving Back

For the first time, the Wildlife Diversity Section reached out to a community one would not normally think about when referring to wildlife. The WDS challenged college art students to take their art outside. There are many opportunities for artists and photographers in the nature and science arena. Unfortunately, most art students do not focus their attention on the natural world around them.

To obtain artwork for the educational materials and the upcoming Pisgah Marsh Boardwalk Project, the WDS decided to host an art contest for college art students. Students could submit up to three entries in one of five categories: pen/pencil, watercolor, colored pencil, charcoal/pastel and computer-assisted art. First place winners received $750 and second place winners received $500.

An overall winner was also selected for the most accurate representation of landscape, plant and animal. These winners each received $250.

Computer-Assisted Art

Jacklyn Donelson, Indiana University Northwest

Pen/Pencil

Kara Miller, Ball State University

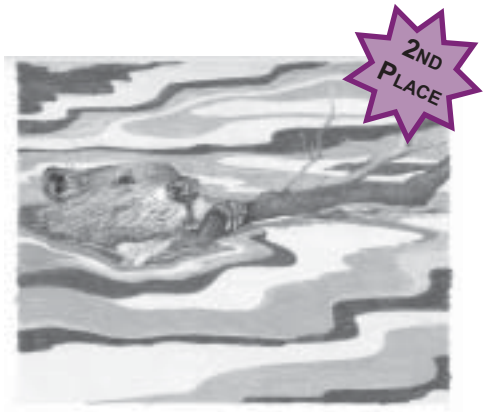
BEST PLANT AWARD

Jacklyn Donelson, Indiana University Northwest

See artwork in full color on the WDS website at *www.wildife.IN.gov* under the Endangered Wildlife link.

Colored Pencil

Mary Cordell, Indiana University, Bloomington



Best Animal Award

Jennifer Idle, Indiana - Purdue University, Ft. Wayne

Pastel

Best Landscape Award

Laura Gooley, Indiana - Purdue University, Ft. Wayne

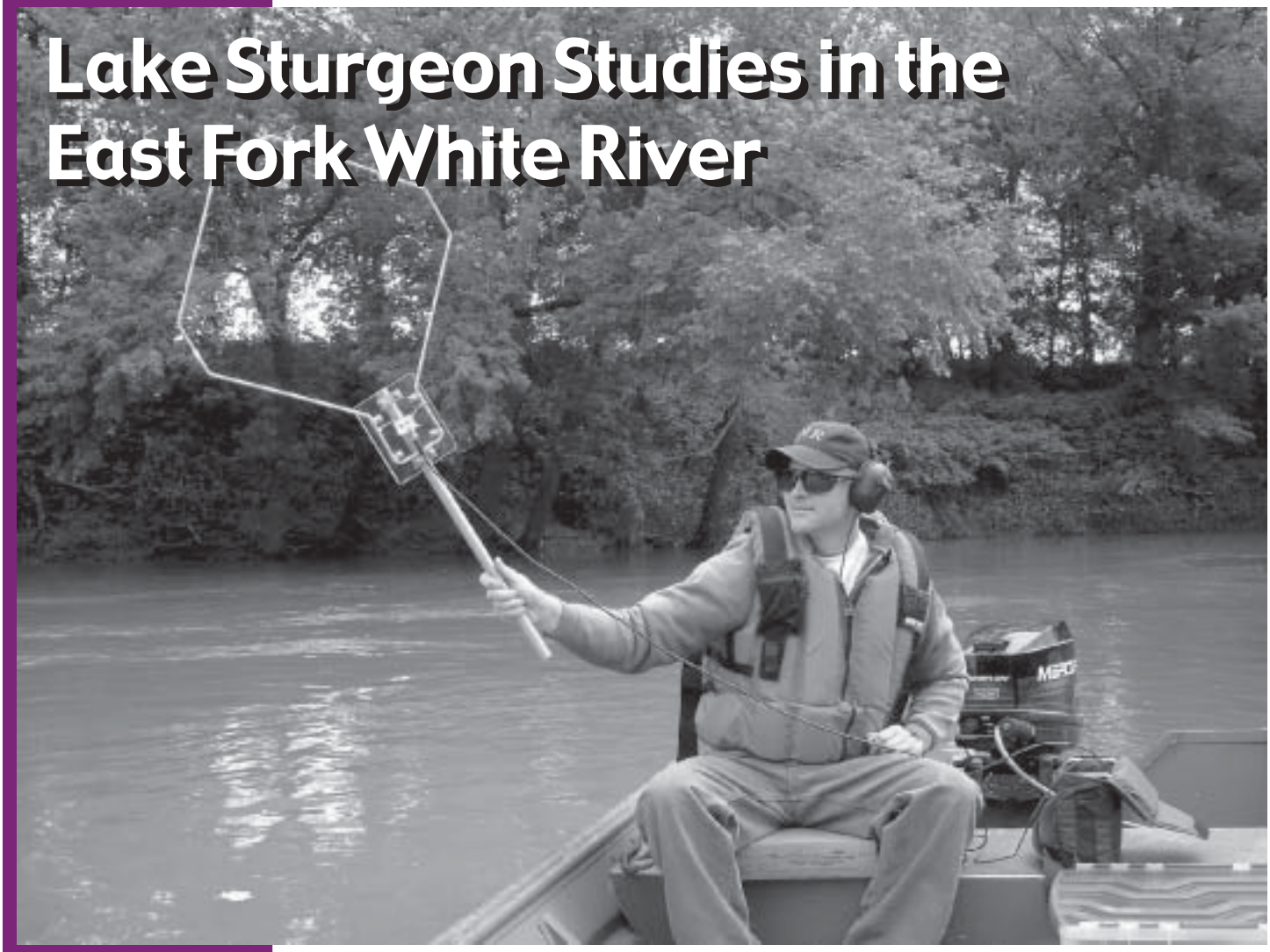
Watercolor

Jacklyn Donelson, Indiana University Northwest

Jennifer Idle, Indiana - Purdue University, Ft. Wayne

Pisgah Marsh
Art Scholarship Contest

Lake Sturgeon Studies in the East Fork White River



WDS aquatics biologist, Brant Fisher tracks lake sturgeon using radiotelemetry. A radio tracking device is attached externally to the body of a lake sturgeon. Using radio signals emitted from the device, biologists are able to track the location of the fish.

Lake sturgeon populations have been studied in the East Fork White River basin for the past seven years. Over 80 lake sturgeon have been captured using gill and trammel nets over an approximate 40-mile stretch of the East Fork White River. Most collected lake sturgeon have ranged from 25 to 40 pounds, although several topping 50 pounds have been captured. Several small individuals (under ten pounds) have been collected over the past couple of field seasons, indicating some recent reproduction.

Seven lake sturgeon were fitted with transmitters in the fall of 2002 and have been tracked in an effort to determine movement patterns and to locate potential spawning areas. The lake sturgeon showed little movement during the winter months until the end of March, when all sturgeon migrated upstream. Five of the seven transmitted lake sturgeon eventually made it to Williams Dam (Lawrence County), with some traveling as much as 40 miles. Since that time, they have slowly redistributed back downstream with most returning to the exact location from where they were originally captured. Three more lake sturgeon were fitted with transmitters during the 2003 summer and will be tracked through an additional spawning season.

Biologist assistant, Ted Briggs, holds a lake sturgeon. A sturgeon's mouth is specially adapted for feeding off the bottom of lakes and streams.

Aquatics

Eastern Sand Darter Survey

The eastern sand darter (*Ammocrypta pellucida*) is currently a species of special concern in Indiana. Historically, it occurred in the Maumee, Tippecanoe, West Fork White, East Fork White, Wabash and Whitewater drainages of Indiana. During a statewide fish survey in the 1940s, the eastern sand darter was collected from 34 locations across the state. Since that time, sporadic collections of the eastern sand darter have continued, although many have speculated that its distribution and abundance is declining. Its decline has been attributed to the destruction of its desired clean, sandy run habitats through siltation and dam construction.

A systematic, statewide survey for the eastern sand darter was initiated in 2001. With the survey nearing its completion, eastern sand darter distribution seems to be even more widespread than known historically. Populations previously unknown have been found in Richland Creek (Greene County), Clifty Creek (Bartholomew) and Sand Creek (Bartholomew/ Jennings). Eastern sand darters have also been collected in several stream systems where they had not been recorded for over a century: Big Raccoon Creek, Deer Creek, St. Mary's River and Maumee River. The special concern status of the eastern sand darter will be reviewed once the survey is completed.

Hellbenders of Indiana

The hellbender, a state endangered amphibian, has been surveyed in Indiana since 1996. Annual recoveries have ranged from 15 to 49 hellbenders, with an average of 27 individuals per year. Basic information of weight, length, sex and location of capture is collected from all captured individuals and each is individually marked for future identification. A few nests have been located during sampling, however, juvenile hellbenders have still not been found. Additional sampling techniques will be evaluated over the next year in an attempt to locate juveniles and to increase sampling efficiency for adults.

The WDS provided information to the U.S. Fish and Wildlife Service as part of a rangewide hellbender status assessment.

Nongame biologists weigh and take measurements of hellbenders.

Freshwater Mussel Surveys

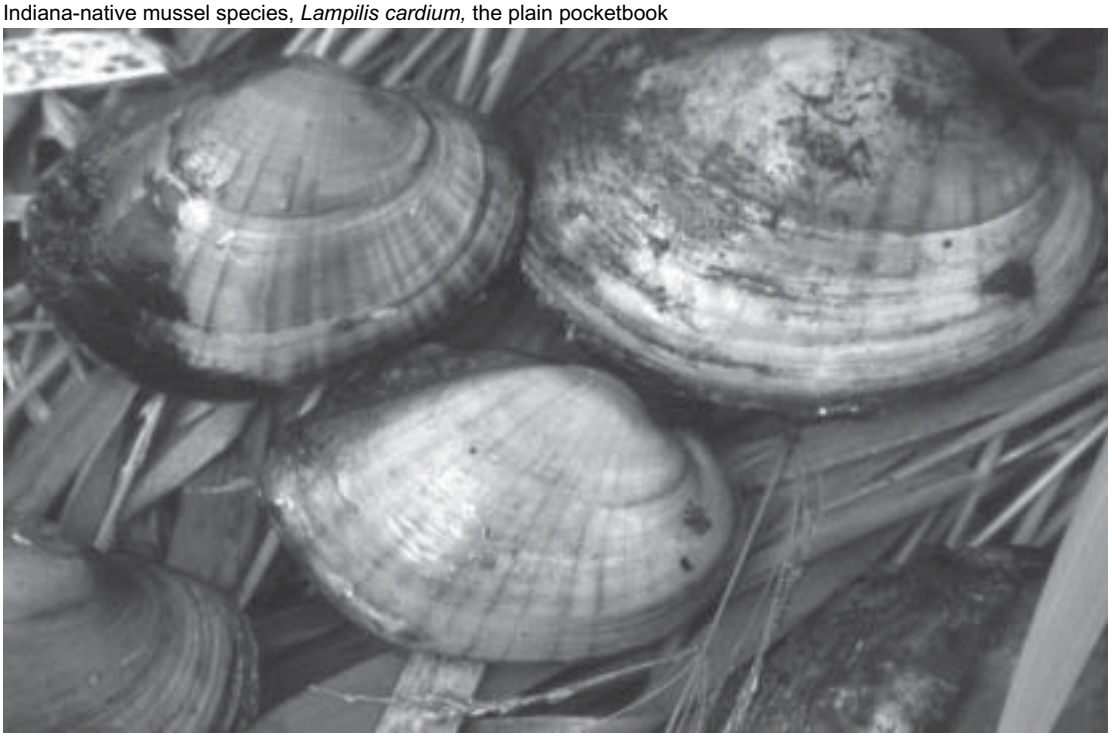
Aquatics

The WDS has funded freshwater mussel surveys for most of Indiana's major drainages since 1990. These surveys have provided valuable information on the current and historical freshwater mussel distribution in Indiana. However, many streams of Indiana have remained unsurveyed; no information is available on their current freshwater mussel community. A statewide survey of these previously unsurveyed streams was initiated in 2001; nearly 200 sites have been sampled to date. A previously unknown reproducing population of *Obovaria subrotunda* (round hickorynut), a state species of special concern, was located in the West Fork White River drainage. Large, reproducing populations of *Venustaconcha ellipsiformis* (ellipse), also a state species of special concern, were located at several locations in the Kankakee and Lake Michigan drainages. Future surveys will hopefully continue to provide important information for many of Indiana's state endangered and special concern freshwater mussel species.

Reevaluation of mussel populations in the primary harvest areas

Commercial harvest of freshwater mussels in Indiana was abolished in 1991. To provide baseline information upon which to evaluate a closure, a study was conducted between 1992 to 1994 to (1) determine the location, species composition and relative abundance of mussel beds in the core mussel producing river reaches (2) evaluate population density, age structure and growth characteristics of commercially valuable and endangered mussel species at representative mussel beds in each river segment and (3) estimate sustainable yield levels for each commercially valuable species in each river reach. Results of the study supported the continued closure of the commercial mussel harvest. At that time, it was recommended that a similar study be conducted in ten years to reevaluate the status of mussel populations. This reevaluation of the mussel populations in the core mussel producing river reaches was initiated this field season.

Indiana-native mussel species, *Lampilis cardium,* the plain pocketbook



Bald Eagle Management

Indiana's nesting eagle population registered a healthy net increase of seven active pairs and production measures during the 2003 season were above historical averages. Overall, 51 nest structures were documented and monitored and a record 45 active nests were present in 23 counties. Seven nests were new and only one active pair from 2002 did not nest this year. The breeding range expanded east to Ripley County where an unused nest was discovered. Production from 33 successful nests resulted in 63 eaglets reaching flight stage, easily beating last year's record of 45 eaglets. Single eaglets were raised at 10 nests, twins at 16 nests, and triplets in seven nests. No reports were received of destroyed or damaged nests during the 2003 breeding season. On the Midwinter Eagle Survey in January 2003, the 145 bald eagles tallied was well below recent counts, most likely due to mild weather conditions prior to the survey. Waterways were ice-free resulting in an above average concentration on lakes and reservoirs (50 percent versus the 10-year mean of 31 percent) compared to rivers. Most (59 percent) of the eagles observed were adults.

Nongame Bird Conservation Initiatives

Involvement continued in various planning initiatives including Partners in Flight (neotropical migrant landbirds), the U.S. Shorebird Conservation Plan, the North American Waterbird Conservation Plan and the North American Bird Conservation Initiative.

In early September, Indiana hosted a Bird Conservation Planning meeting with 44 individuals from seven states with 26 agencies and organizations represented. The workshop focused on the eastern portion of the Tallgrass Prairie Bird Conservation Area. Priority species were discussed and focus areas identified for wetland, grassland and woodland areas. Digital maps of land use/vegetation cover were prepared and distributed on CDs to workshop participants.

The inaugural meeting of the Scientific Technical Committee for the Upper Mississippi/Great Lakes Region Joint Venture was attended. As state co-coordinator for the federal Breeding Bird Survey, ornithologist, John Castrale reports that most of the 62 survey routes in Indiana were assigned and successfully completed during 2003. The U.S. Geological Survey combines data collected from all participating states to compile nationwide results.

Peregrine Falcon Patrol

	Nesting Attempts	Successful Nests	Young Fledged
1989	1	1	3
1990	2	2	3
1991	2	2	3
1992	2	2	6
1993	2	2	6
1994	2	2	8
1995	3	3	8
1996	7	6	16
1997	7	6	15
1998	8	7	15
1999	8	7	24
2000	8	8	23
2001	9	9	20
2002	10	9	27
2003	11	9	33

Indiana Peregrine Falcon Nesting

With the addition of a new breeding pair in South Bend (12 years after releases there), a record 11 pairs of peregrine falcons nested in Indiana during 2003. Peregrines were located at five industrial sites (steel mills, power plants, highway bridge, grain silo) along Lake Michigan, a power plant in Jasper County (30 miles south of Lake Michigan), and at inland urban areas (five nests in Indianapolis, Fort Wayne, Kokomo, South Bend). Two existing pairs selected new nest sites, relocating 0.25 and 1.75 miles from sites used the previous year. All but three nesting adults were identified and turnover occurred with a male at South Bend and a female at a bridge site in East Chicago. Nine of 11 nesting attempts were successful, and a record 33 chicks fledged with all but four chicks banded. Three instances of post-fledging mortality and five injured birds (three subsequently released) were noted. At the end of the season, two nest boxes being used were removed because of roof replacement (Indianapolis) and demolition of the gas tower at Kokomo. New nests boxes will be erected nearby. A new nest box was built at a grain processing plant in Lafayette.

Crane Management

During the coordinated fall census on Nov. 1, 2002, 14,873 sandhill cranes were counted at Jasper-Pulaski Fish and Wildlife Area (FWA) along with 170 at Pigeon River FWA, 20 at Kingsbury FWA and 560 at Lake Monroe. The peak fall population of staging sandhill cranes at Jasper-Pulaski was 34,629 on Nov. 26 with large numbers also counted on Nov. 20 (30,323) and Dec. 4 (29,659).

During the second year of the Eastern Whooping Crane Program, 17 captive-bred whooping cranes were lead by ultralight aircraft on Oct. 13, 2002 from Necedah National Wildlife Refuge in central Wisconsin and 16 arrived on Nov. 26 at the wintering site at Chassahowitzka National Wildlife Refuge on the Gulf Coast of Florida. The Indiana leg of the project lasted from Oct. 31 to Nov. 12 with 16 cranes making stops in Benton, Boone, Hendricks, Morgan and Jennings counties. Last year's surviving cohort of five whooping cranes remained in Wisconsin until Nov. 9 to 25 before migrating singly (three individuals) or as a pair. Two of these birds were seen briefly in Indiana.

Spring migration occurred primarily in late March and April with one bird from the 2001 cohort observed in Indiana on March 17 and 15 birds (14 from the 2002 cohort) spending April 3 to 12 in Jackson County.

Biologists with the Whooping Crane Eastern Partnership work with the young whooping cranes to strengthen their wings.

Database of Colonial-Nesting Waterbirds

Waterbird colonies in Indiana were last systematically censused 1998 to 1999 and plans call for a survey every five years. Target species are double-crested cormorants, great blue herons, black-crowned night-herons, great egrets, other herons and egrets (except green herons), gulls and terns.

During 2003, volunteers and personnel from government agencies were assigned known great blue heron colonies and asked to make counts of active nests in late spring prior to leaf-out. Reports of new colonies of any colonial waterbird were also solicited and checked.

For great blue herons, 172 of 184 assigned colonies were checked and 6,728 active nests were counted in 131 colonies. The total number of nests was virtually identical to those counted five years previously, although mean colony size declined slightly. Thirty-two colonies that were active in 1998 and 1999 were abandoned while 37 colonies during 2003 were discovered after 1999. Great egrets were present at five great blue heron colonies but nests were few (less than 10). Caspian terns (146 nests) and black-crowned night-herons (91 nests) were present at single sites along Lake Michigan and were associated with two large gull colonies. These colonies consisted predominately of ring-billed gulls (more than 43,000 nests) with less than 600 herring gull nests. Nine ring-billed gull nests with eggs (among 66 nest structures) discovered in Elkhart County were preyed upon. Double-crested cormorants, cattle egrets, little blue herons and snowy egrets were not reported nesting as they had been in 1998 and 1999.

Survey and Management of Least Terns

Since 1986, least terns have nested at Gibson Lake and for the first time, a second colony was discovered in Indiana. The new site is in Spencer County near Rockport about 50 miles southeast of the Gibson County site. Both are located at electrical generating plants adjacent to major rivers (Wabash and Ohio Rivers). At Cinergy's Gibson Station, terns did not nest on the gravel dike bisecting Gibson Lake where they usually nest, but chose two ash disposal areas instead. As many as 45 adults were present during the summer and 39 nests were discovered, a number that includes renesting attempts. A heavy rain washed out seven of these nests, but predation (likely from great horned owls, raccoons or coyotes) was responsible for most losses. Eggs hatched at 19 nests and a minimum of eight chicks fledged. Cinergy funded a Purdue University research effort to better identify nest predators using remote cameras (still and video) at dummy nests and actual nests.

At American Electric Power's Rockport station, 10 nests were discovered along a gravel road separating ash disposal areas and up to 30 adults were tallied. At least eight chicks fledged from eight nests that hatched eggs. Construction of shallow water wetlands adjacent to Gibson Lake that will include two tern nesting islands has been delayed. However, additional agricultural land was obtained and wetlands will be developed with some areas devoted to least tern breeding areas.

Amphibian Program Volunteer of the Year Awards

Herps

The Indiana Amphibian Monitoring Program, for the first time, has awarded three individuals for their participation with the national North American Amphibian Monitoring Program (NAAMP) and one individual for his participation with FrogWatch USA.

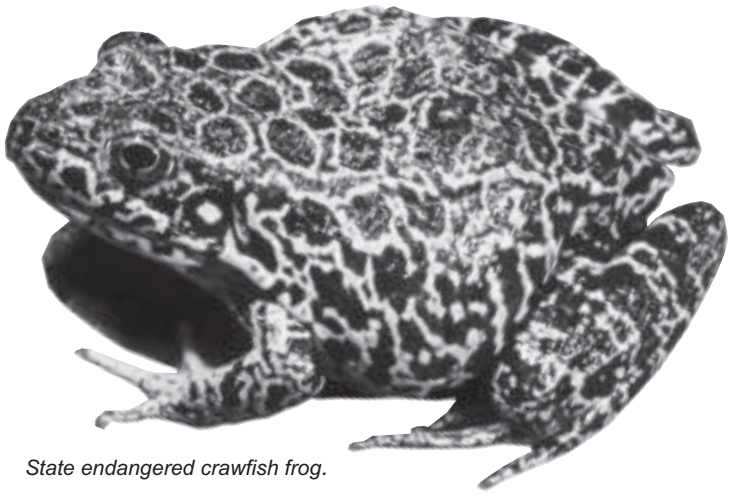
The individuals receiving the NAAMP awards are: Merilee Britt of Mishawaka; Bill Dean of Louisville, Ky.; and Ben Shafer of Warsaw. Val Frazee of Indianapolis was awarded the FrogWatch volunteer of the year award.

The Program awards volunteers who had outstanding participation with the national NAAMP driving routes or participation with the nationwide FrogWatch USA program. The WDS is thrilled to finally recognize the individuals who have dedicated the most time to the program. This is the first year that these awards were given out. Because the program relies on volunteers, it is important to recognize the volunteers that go above and beyond the minimum requirements for the program.

Both programs utilize volunteers to monitor frog and toad species in their area. Volunteers who monitor a national NAAMP route are assigned a ten-mile long route which they must drive three times throughout the year. The route is made up of ten sites, or stops, at which the volunteer must stop and record data for the frog and toad species that they hear. FrogWatch volunteers may select a habitat that is suitable for frogs and toads. Individuals who opt for the FrogWatch portion of the program must have a minimum of one location to monitor.

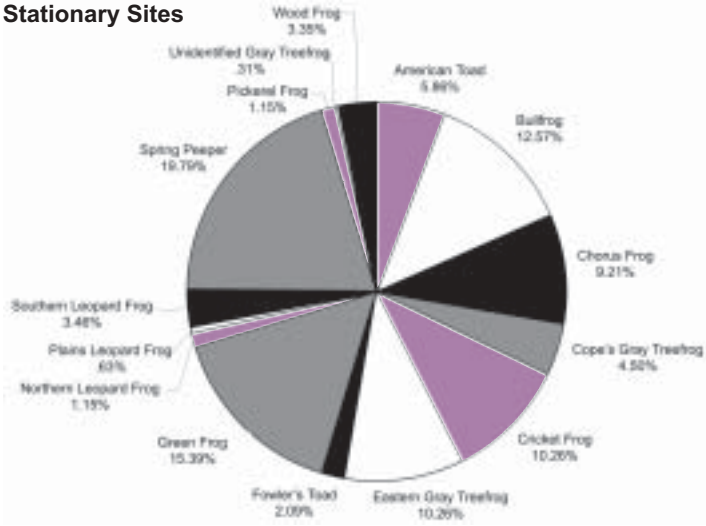
Volunteers attend a training session to learn about the species that live in Indiana, how to identify them by their breeding calls and how to record data for the program. Training occurs one time during the year. More information is available on the WDS website.

Award winner Bill Dean. Photos of other winners not available.

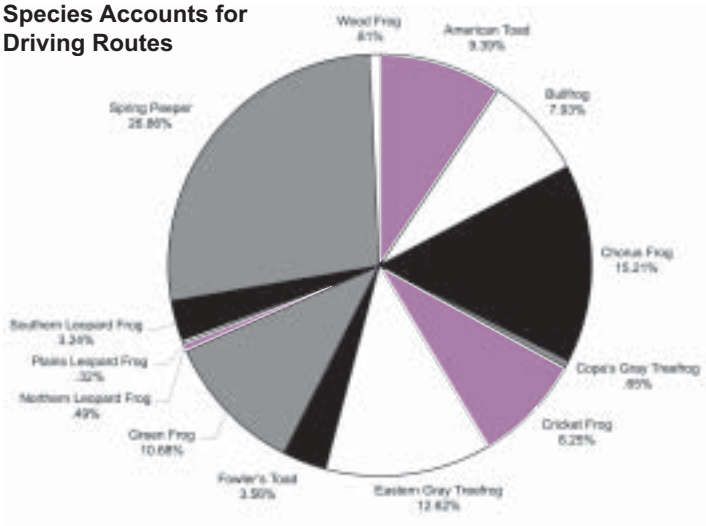


State endangered crawfish frog.

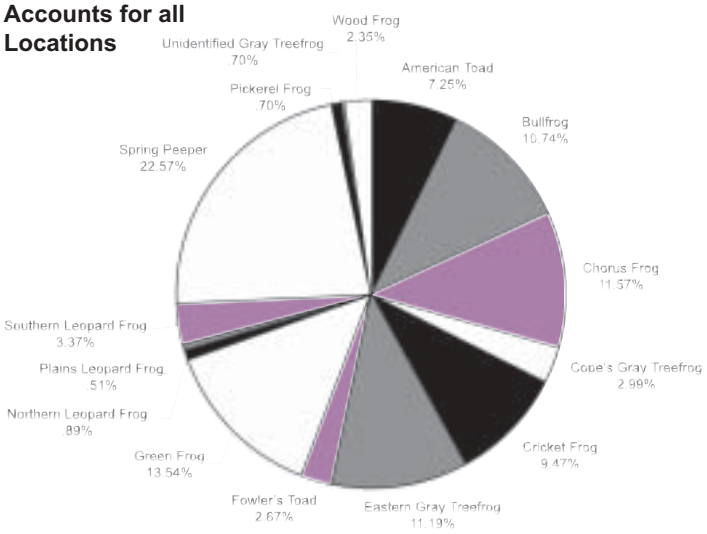
Species Accounts for Stationary Sites



Species Accounts for Driving Routes



2003 Species Accounts for all Locations



The Indiana Amphibian Monitoring Program made new strides during the 2003 breeding season. The program provides two options for which volunteers can collect data: Stationary sites through FrogWatch USA and Driving routes through the North American Amphibian Monitoring Program (NAAMP). The 2003 season is the first year that we have been able to compile data.

FrogWatch volunteers recorded 955 accounts of frogs and toads, NAAMP recorded 618 for a total 1,573 frog and toad accounts recorded. The total number of data collection visits for FrogWatch volunteers was 586 while NAAMP had 55 for a grand total of 641 site visits.

The most common species heard overall are spring peepers, green frogs, chorus frogs and eastern gray treefrogs.

Total number of species accounted for during the Indiana Amphibian Monitoring Program's 2003 season.

	FrogWatch	*NAAMP*	*Total*
American Toad	56	58	114
Bullfrog	120	49	169
Chorus Frog	88	94	182
Cope's Gray Treefrog	43	4	47
Cricket Frog	98	51	149
Eastern Gray Treefrog	98	78	176
Fowler's Toad	20	22	42
Green Frog	147	66	213
Northern Leopard Frog	11	3	14
Plains Leopard Frog	6	2	8
Southern Leopard Frog	33	20	53
Spring Peeper	189	166	355
Pickerel Frog	11	0	11
Unidentified Gray Treefrog	3	0	3
Wood Frog	32	5	37
TOTAL ACCOUNTS	955	618	1573

Amphibian Monitoring Program

Upcoming Projects with Herpetology

With a new herpetologist, the Wildlife Diversity Section has new and exciting projects planned for amphibians and reptiles in Indiana.

Specific Herp Sampling:

This project will begin to assess the locations of endangered reptiles and amphibians throughout the state. Each year surveys will be performed on the status of two endangered species. Information gained from this study will be applied to current range information.

We will sample for the crawfish frog, spadefoot toad, hieroglyphic river cooter, cottonmouth, green salamander and northern red salamander. WDS biologists will initially survey for the river cooter and spadefoot toad and move on to other species in the following years.

Box Turtle Project:

The box turtle project will involve the survey and radiotelemetry of ornate box turtles in southern Indiana. Habitat data will be collected for radioed turtles within this project. The project will also include sampling for eastern box turtles on state properties to obtain demographic information.

Radio transmitters will be glued to turtles' shells with a form of epoxy. The transmitters are small and should weigh no more than four grams. Data on habitat structure, local temperature regimes and vegetative composition will be recorded.

Timber Rattlesnake Survey:

The WDS will examine the status of timber rattlesnake populations within Indiana public properties. After this preliminary study, this project could evolve into a radiotelemetry project.

Snapping Turtle Survey:

During the snapping turtle survey we will examine the status of snapping turtle populations within Indiana. Data will be collected to determine survival, age of reproduction, recruitment, growth rates and sex ratios. This data will be used for population modeling.

General Sampling:

Fish and Wildlife Areas will be surveyed to determine the status of their reptile and amphibian populations. This will provide baseline data for populations for future years.

Information will be collected on all species of reptiles or amphibians that are encountered while performing herpetological surveys.

(Above) Jeffersons Complex salamander. (Below) A timber rattlesnake blends in quite well with its surroundings.

Bobcat Population Study

From December 2002 through mid-April 2003, 12 bobcats (7 males, 5 females) were captured 15 times in 2,456 trap nights during the fifth field season of a multi-year study to investigate resident bobcat populations in southcentral Indiana. Three cats (2 males, 1 female) were previously-radioed adults and outfitted with new transmitters. Nine new bobcats (5 males, 4 females) were captured including a subadult and female kitten. Each radioed cat was generally located three times weekly through August 2003 to obtain information on survival, home range and movement patterns.

Since the project began in 1998, 30 bobcats (18 males, 12 females) have been captured 67 times in 10,773 trap nights during five winter trapping sessions. Twenty-six cats (17 males, 9 females) have been radioed and monitored for an average of nearly 16 months (range: three months to four years). Nine radioed bobcats (5 males, 4 females) are known to have been killed during the study, six of which were caused by collisions with vehicles.

Preliminary analyses indicate the annual home range size of a resident adult male bobcat averages about 30 square miles while that of an adult female averages only 16 square miles. The study has also documented some noteworthy dispersal movements by several subadult bobcats. Six young males have dispersed an average of nearly 100 miles from their capture site including three individuals that were found roadkilled east of St. Louis, Mo. (179 miles), downtown Cincinnati, Ohio (126 miles) and rural northern Kentucky (62 miles). In contrast, dispersal distances for three subadult females have ranged from 2 to 14 miles (average of 7.4 miles).

Spatial relationships of bobcats monitored to date and sightings of non-radioed cats indicate other animals exist in the original study area of northwest Lawrence, southeastern Greene and northern Martin counties. Livetrapping efforts to capture these cats, as well as radioed residents, will begin in November 2003.

Bobcat Report Database

Bobcats have been listed as a state-endangered species since 1970, but evidence indicates that Indiana's bobcat population has increased sharply in the last 10 years. Excluding individuals captured or sighted as part of the telemetry study, there have been 63 confirmed reports of bobcats from 26 Indiana counties since 1970. Fifty-three reports (84 percent) have occurred in the last eight years. Most are in the southwest and southcentral sections of Indiana with fewer reports scattered throughout the southeast, westcentral, northcentral and northeast regions of the state. Leading counties include Posey (10), Lawrence (5), Warrick (5), Greene (5), Martin (5) and Pike (5). Recent confirmed reports include roadkills in Crawford, Daviess, Greene, Martin, Perry, Posey and Steuben counties, accidental captures in Pike County and photographs from a remote camera station in Newton County. The database presently contains information on more than 265 reports of bobcats in Indiana.

Heather Walker holds a sedated bobcat in preparation for weighing it.

Confirmed Bobcat Reports in Indiana 1970 - 2003

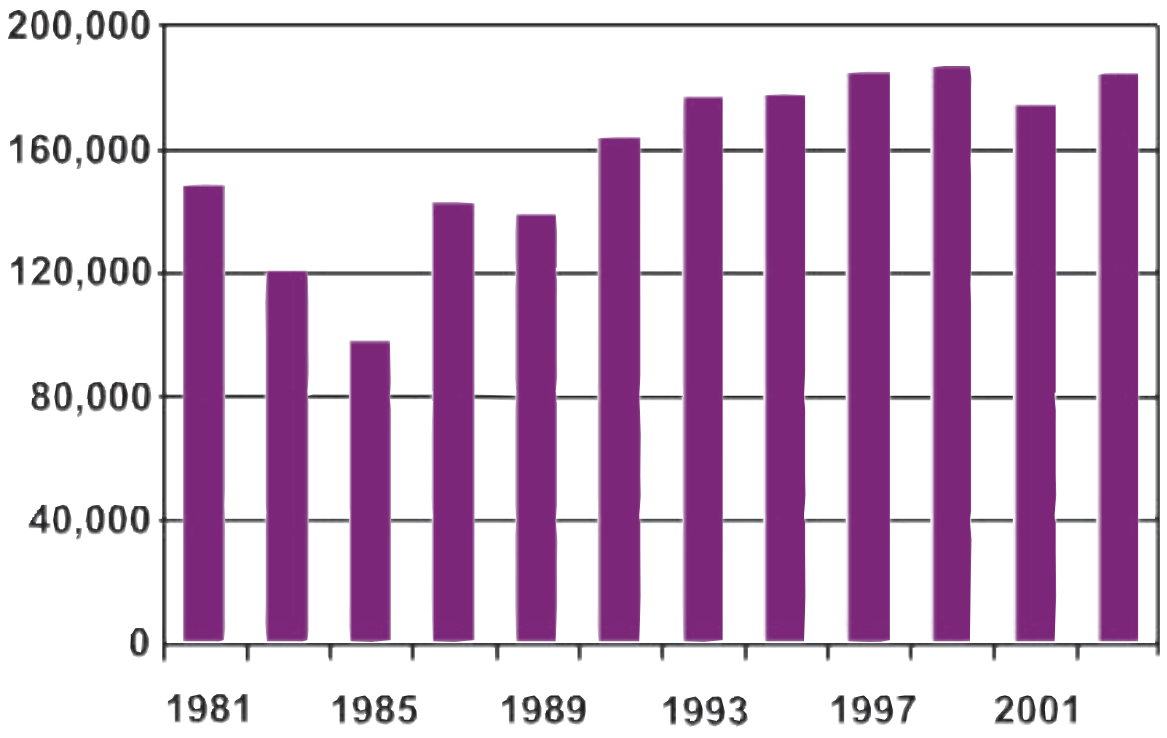
Survey and Management of Indiana Bat Hibernacula

Mammals

Hibernacula Survey

Surveys of winter hibernacula of the federal-endangered Indiana bat are conducted in Indiana every two years to monitor the species' status and assess progress toward recovery. In January and February 2003, a total of 183,303 Indiana bats was counted in 25 of 28 caves visited. This figure represents a six percent increase (10,227 bats) from the 2001 count and was largely due to significant gains at three sites: Wyandotte, Coon and Grotto caves. Wyandotte Cave contained 31,222 bats, a nine percent increase from 2001, thus making it Indiana's fourth Priority 1 hibernacula. New records were also established at Coon (10,674 bats; 67 percent increase) and Grotto (10,338 bats; 91 percent increase) caves, two long-time Priority 2 hibernacula in Monroe County. Both sites had typically harbored less than 5,000 bats since the early 1980s. A slight increase was also noted at Ray's Cave (50,941 bats; 6 percent increase), yet it still remained about 11,500 bats less than the previous high in 1999. Jug Hole Cave, another key site, remained relatively stable (19,240 bats) while several smaller hibernacula with less than 1,000 bats (Endless Cave, Panther/Neyman Cave, Gypsy Bill Allen Cave, Leonard Springs Cave, Sexton Springs Cave) also experienced moderate gains. In contrast, Indiana's two original Priority 1 hibernacula both continued their long-term declines and have now reached record low levels. Twin Domes Cave had 49,350 bats, a two percent decline from 2001 but less than half the number (98,250) recorded

Indiana Bat Winter Hibernacula Populations



in 1981. Batwing Cave dropped to 6,900 bats, a 26 percent loss in two years but less than one-fourth of its previous high (29,960) in 1981. Less significant losses were also reported from Saltpeter Cave (Crawford County), Clyfty Cave, Robinson's Ladder Cave and the King Blair/ Brinegar system. One new hibernaculum, Nichols Cave in Orange County, was found during the 2003 survey (34 bats).

Management of Winter Hibernacula

Nongame biologists use a variety of strategies to manage important Indiana bat winter hibernacula and assess the efficacy of various protection measures. *"Indiana Bat Hibernating Colony"* warning signs, which define the seasonal closure period from Sept. 1 to April 30, are posted at 11 caves in southern Indiana. Remote electronic alarm systems, first deployed in 1996, continue to be effective deterrents to unauthorized visitations in three monitored hibernacula. The 2002 to 2003 winter was the fifth consecutive hibernating season in which no visitations were noted in Coon Cave. No visitations were detected in Grotto Cave for six out of the last seven winters. Five trips, however, were detected by speloggers in Ray's Cave, the first known visits to this site in three years and the most since the 1994-1995 winter. Saltpeter Cave had two unauthorized trips, which was typical of the previous three winters. Other management activities include landowner outreach, sign maintenance and use of dataloggers to monitor roost temperatures in select hibernacula.

Allegheny Woodrats of Indiana

Allegheny woodrats have been listed as endangered in Indiana since 1984. They are rare and limited to the southcentral karst region of the state. Surveys by nongame personnel since 1991 have found woodrats at 15 sites (12 bluffs, 3 caves) along the Ohio River in Harrison and Crawford counties. These sites were revisited from May through October 2002 to monitor changes in the species' status, distribution and relative abundance in the state. A total of 81 woodrats (29 males; 52 females) was captured 139 times in 1,173 trapnights at only ten sites (9 bluffs, 1 cave). This represents a 34 percent decline in the number of individuals taken during the last survey in 1996. No woodrats were found at five sites (3 bluffs, 2 caves) at which they occurred between 1991 and 1996. Population declines were evident at four of the ten occupied sites and only five sites yielded 10 or more individuals. Although most populations in Indiana have declined in the last six years, Allegheny woodrats persist at Bull's Point Bluff, Harrison-Crawford State Forest, Tobacco Landing, the Narrows and Rabbit Hash Ridge.

Nongame biologists put the woodrats inside of a plastic mesh cone to weigh them and put identification tags on their ears.

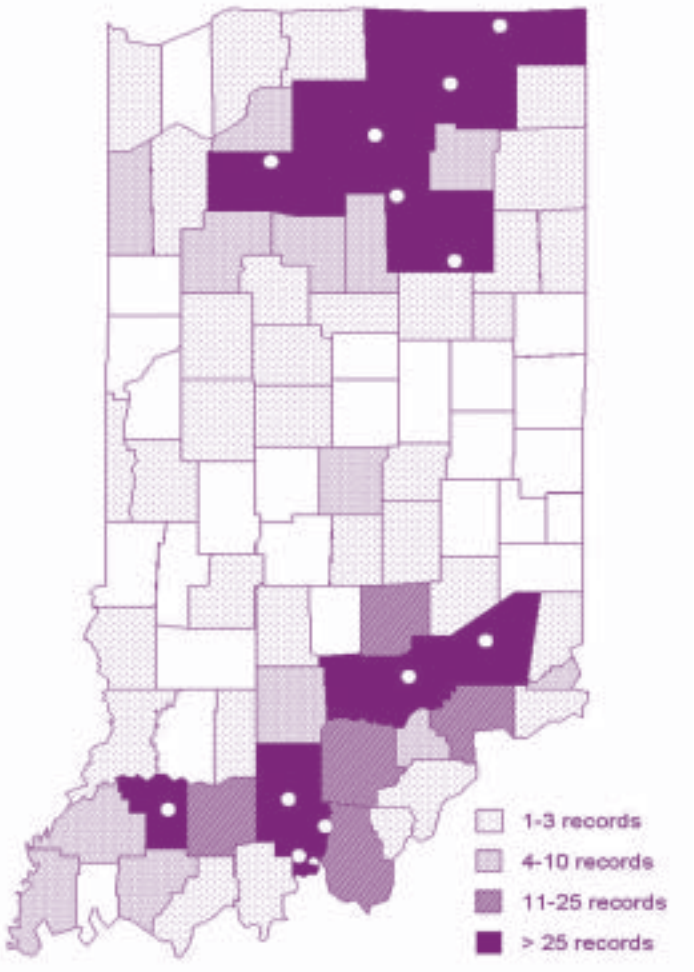
River Otters Reestablishing in Indiana

The Indiana River Otter Restoration Program was created with a goal of restoring otter populations in six watersheds in the state. From 1995 to 1999, 303 otters (184 males, 119 females) were released at 12 sites in northern and southern Indiana. To date, 56 (42 males, 14 females) of these animals (18 percent) are known to have died. Incidental trapping (n = 28) and road-kills (n = 17) have accounted for 80 percent of the known mortalities.

Field surveys, observations and information obtained from recovered individuals are now used to monitor the post-release status, distribution and range expansion of river otters in Indiana. Because sightings depend upon collection effort, they may be unreliable as otters become established and less of a novelty near release sites. Two years ago, standardized bridge/stream surveys were initiated to obtain unbiased information regarding Indiana's otter population. Twenty-nine counties were sampled during the 2002-2003 winter, and conclusive evidence of otters was detected on fourteen (48 percent) routes including a new record in Johnson County (Pleasant Creek and Youngs Creek drainages).

Between Sept. 1, 2002 and Aug. 31 2003, 35 river otters (15 males, 18 females, 2 unknown) were reported killed in Indiana including 23 individuals taken during the 2002-03 fur harvest season. There are now post-release records of river otters from 67 Indiana counties. Although most records (87 percent) occur in the 16 counties surrounding the release sites, recovery of marked and unmarked individuals indicates other portions of Indiana have been colonized by otters emigrating from release areas or adjacent states. Also, the total number of otters and percentage of unmarked individuals taken annually continues to increase, which supports the premise that river otters are becoming established throughout Indiana.

Post-release Records of River Otters in Indiana.



Release sites are denoted by white dots.

TACs: A Plethora of Knowledge

No, they aren't thumb tacks or even little nails, TACs are Technical Advisory Committees.

Over 550 species of wildlife are the responsibility of the WDS. At any given time in the last ten years, 75 to 85 of these species have been on the state endangered species list. Anyway you look at it, the conservation of these animals is a big job.

How does such a small program decide what species should be considered endangered or special concern? The WDS does not work alone. The WDS works with five TACs; one each for mammals, birds, herps, fish, and mollusks and crustaceans.

Each committee has a maximum of nine members and a WDS biologist as an ex-officio member. The members are generally active academicians with expertise relative to a specific group of animals or an otherwise recognized expert on the subject. The TACs operate under approved guidelines and the members serve at the discretion of the director of the Division of Fish and Wildlife. Generally they meet once a year to consider a number of conservation issues. They are also called upon, either individually or as a committee, throughout the year to address specific issues.

Collectively, TAC members represent a wealth of knowledge about Indiana wildlife and have decades of hands-on experience. The service and the technical advice these committees provide to the Division and the state is invaluable. The WDS could not do their job alone and is very grateful of the members of the TACs past, present and future for their participation and counsel.

DJ Case & Associates, under contract to the WDS, developed an educational brochure to promote conservation of Massasauga rattlesnakes in the Midwest. This effort was part of a multi-state project that received funding through Section 6 of the Federal Endangered Species Act.

Joint Ventures

A rehabilitated eagle is released at Cinergy Corp's Eagle Days in January 2003. Photo by Tom Wolfe.

CINERGY®

Fish and Wildlife Director, Glen Salmon accepts a donation from Cayuga Generating Station Manager, David Elkins. Elkins and Sr. Environmental Scientist, Tim Hayes presented Katie Smith and the WDS with a $700 donation earned during the 2003 Cinergy Eagle Days.

The Center for Reptile and Amphibian Conservation and Management

OHIO DEPARTMENT OF NATURAL RESOURCES DIVISION OF WILDLIFE

A team of researchers at the Center for Reptile and Amphibian Conservation and Management under the direction of Dr. Bruce Kingsbury finished a three-year study detailing the ecology of the federal-threatened copperbelly water snake (CWS) (*Nerodia erythrogaster neglecta*). This was a cooperative project with the Ohio Division of Wildlife. The study area, in northwest Ohio, supports the largest remaining population of CWS. Radiotelemetry was used to determine habitat use and movement patterns. Specimens of the northern water snake (NWS) (*Nerodia sipedon sipedon*) were also captured, marked and studied. The ecology of the two species was compared. Copperbelly water snakes had average daily movements over twice the distance of NWS, use twice as many wetlands as NWS and uses areas over four times larger than NWS. This information is crucial to the development of recovery strategies for the CWS.

WDS on the Web

The WDS has redesigned its website for easier navigation. Additional educational resources will be added throughout the 2003-2004 year. Updates to the Section and information about current projects such as the Osprey Reintroduction Program, winter Eagle Days and the Amphibian Monitoring Program can all be found on the new website.

Species Updates

The scientific name for the Southern Leopard frog has been changed and is now *Rana sphenocephala.*

Publications

Brack, V., Jr., S.A. Johnson, and R. Keith Dunlap. 2003. Wintering populations of bats in Indiana, with emphasis on the endangered Indiana myotis, *Myotis sodalis*. Proceedings of the Indiana Academy of Science, 112: 61 - 74.

Johnson, S.A., V. Brack, Jr., and R.K. Dunlap. 2002. Management of hibernacula in the state of Indiana. In *The Indiana bat: biology and management of an endangered species.* ed. A. Kurta and J. Kennedy, 100 - 109. Austin, TX: Bat Conservation International.

Simon, T.P., J.O. Whitaker, Jr., J.S. Castrale, and S.A. Minton. 2002. Revised checklist of the vertebrates of Indiana. Proceedings of the Indiana Academy of Science, 111(2): 182 - 214.

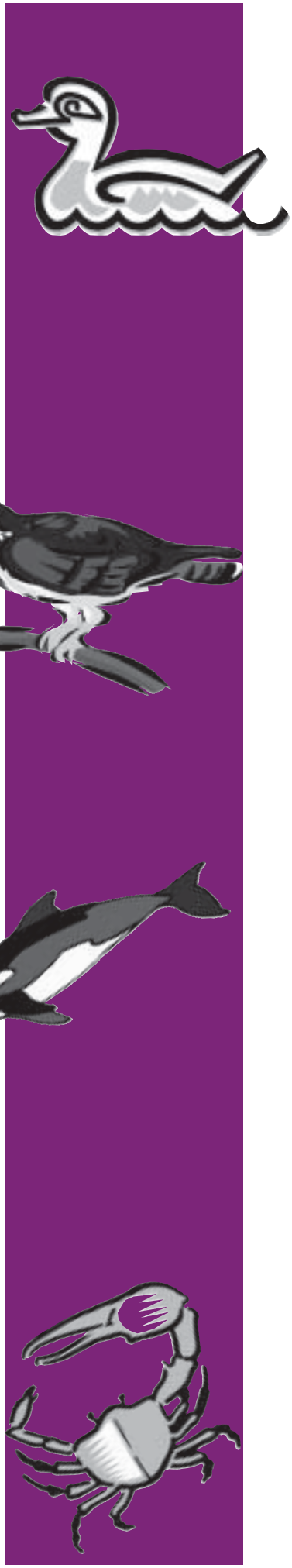
Ask the Experts

Outside of e-mails, phone calls and paperwork, the WDS staff has very exciting jobs. The WDS staff answered some questions so that you can get to know them better.

Meet the WDS Staff

	If you could be any animal, what would you be and why?
 Katie Smith	A hen wood duck. I like the idea of living in a Sycamore tree house on a river bank.
 Alisha Schiffli	I think that I would be a crab. I could lay by the ocean all day. If someone bothered me, I could either hide in my shell or pinch them!
 John Castrale	I would be a migratory bird that winters in Central or South America, breeds in the Midwest or farther north, hangs out near water, and is carnivorous. An osprey, arctic peregrine or a tern species would fit the bill.
 Brant Fisher	An orca with the hope that I might make it into a show at Sea World.
 Scott Johnson	I'm pretty happy being a human. I like the fact that I can walk upright and the opposable digit comes in pretty handy.
 Zack Walker	I would be a household pet dog. I would enjoy being pampered, fed, scratched whenever I wanted, and wouldn't have to worry about anything.

Where is your favorite location in Indiana to do research?	What is your most memorable experience in the field?	If you could do research anywhere in the world, where would it be and on what animal?
The Blue River in Harrison County.	While night-tracking skunks, I frightened a herd of unsheered sheep with my spotlight. They panicked and almost ran over a skunk. The entire flock smelling like skunk was not an incident I wanted to explain to the angry sheep herder.	Eastern hellbenders in the heart of its range.
Hmmm, my favorite location? Anywhere in the woods.	I can't say that it's glamorous...I was out woodrat trapping in 90 degree heat and we drank all of our water. I got overheated, dehydrated and basically sick. I had to stay an extra night just to recuperate so I could drive home!	I would love to do behavioral research on African elephants on the Serengeti in Africa.
Possibly Patoka Lake; also the Lake Michigan shoreline.	Nothing beats the adrenaline rush of checking peregrine falcon nests on tall buildings or smokestacks while the adults aggressively defend their chicks. Surveying gull colonies is also memorable for the noise, diving gulls and raining whitewash.	Mist netting songbirds in tropical rainforests of South America or Australia.
East Fork White River in Martin County.	Pulling up a gill net with the first three lake sturgeon I had ever collected. We weren't having much luck catching lake sturgeon in my first year of sampling for them. Then on the last attempt for the field season we pulled up three in one net.	Work with beluga sturgeon in the Caspian Sea.
No place in particular, but it's pretty hard to beat a woodrat site (Ohio River cliff) in October.	My first visit to Twin Domes Cave. At that time, the cave held the largest known population of Indiana bats in the U.S. (~80,000). I'd been on the job for about a month, and I'd never seen anything like that before. . . to be that close to that many animals!	I'm pretty content with the work here in Indiana. I still find it challenging and it can be rewarding.
I love to work in southern Indiana. I especially enjoy Brown County hills.	My most memorable experience is finding my first timber rattlesnake. I didn't have the proper handling equipment and had to carry it up a hill to a car. I think that was one of the greatest adrenaline rushes I have ever had in my life.	I would do research on Australia's great barrier reef working on coral ecosystems.



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